Claims

What is claimed is:

1. A method for operating fluorescent lamps with the aid of a ballast, which has an inverter having semiconductor switches, which are arranged in a bridge circuit, and having a control apparatus for the semiconductor switches, and at least one load circuit which is in the form of a resonant circuit, is connected to the inverter, and in which at least one fluorescent lamp is operated, the inverter applying a radiofrequency current to the at least one fluorescent lamp, and the power consumption of the at least one fluorescent lamp (LP) being set to a predeterminable value by means of a first control loop by varying the frequency of the radiofrequency current,
wherein, in addition, the power consumption of the at least one fluorescent lamp is stabilized at the predeterminable value by means of a second control loop, which is passed through at shorter time intervals than the first control loop.

2. The method as claimed in claim 1, wherein for the purpose of carrying out the first control loop, a desired value which can be set in terms of its magnitude is compared at predetermined time intervals with an actual value which is derived from the power consumption, averaged over time, of the at least one fluorescent lamp, and a first manipulated variable for the control apparatus is formed from this actual value, and in which, for the purpose of carrying out the second control loop at predetermined time intervals which are shorter than the time intervals for the first control loop, the change in the power consumption of the at least one fluorescent lamp is evaluated for the purpose of generating a second manipulated variable for the control apparatus, and the two manipulated variables are evaluated in order to generate control signals for regulating the switching frequency of the semiconductor switches.

3. The method as claimed in claim 1 or 2, wherein for the purpose of carrying out the first control loop, a desired value which can be set in terms of its magnitude is compared at predetermined time intervals with an actual value which is derived from the current flowing through the bridge circuit, and in which, for the purpose of carrying out the second control loop at predetermined time intervals which are shorter than the time intervals for the first control loop, the change in the current flowing through the bridge circuit is evaluated.

4. The method as claimed in claim 3, wherein the actual value for the first control loop is derived from the current flowing through the bridge circuit by means of a first low-pass filter.

5. The method as claimed in claim 3, wherein the actual value for the first control loop is derived from the current flowing through the bridge circuit by means of a first digital filter.

6. The method as claimed in claims 2 and 3, wherein during the second control loop, a comparison of the desired value and the actual value is carried out, an actual value being derived from the current flowing through the bridge circuit at the end of each predetermined time interval and this actual value being compared with the actual value of the directly preceding time interval acting as the desired value, and the second manipulated variable for the control apparatus being generated therefrom.

7. The method as claimed in claims 4 and 6, wherein the actual value for the second control loop is derived from the current flowing through the bridge circuit by means of a second low-pass filter, the time constant of the second low-pass filter being smaller than the time constant of the first low-pass filter.

8. The method as claimed in claims 5 and 6, wherein the actual value for the second control loop is derived from the current flowing through the bridge circuit by means of a second low-pass filter (R4, C4), the time constant of the second low-pass filter being smaller than the time constant of the first low-pass filter.

9. The method as claimed in claim 1, wherein the predetermined time intervals of the first control loop are from 1 ms to 2 ms long.

10. The method as claimed in claim 1, wherein the predetermined time intervals of the second control loop are from 50 µs to 200 µs long.

11. A ballast for operating fluorescent lamps, the ballast having an inverter having semiconductor switches which are arranged in a bridge circuit, a control apparatus for the semiconductor switches, and at least one load circuit which is in the form of a resonant circuit and is connected to the inverter, having terminals for at least one fluorescent lamp, the control apparatus having means for varying the switching frequency of the semiconductor switches in order to set the power consumption of the at least one fluorescent lamp to a predeterminable value, wherein the control apparatus has means for stabilizing the power consumption of the at least one fluorescent lamp at the predeterminable value.